No.14 Increase Emphasis on Smart, Energy Efficient and Sustainable Buildings going Forward.

CHAMPIONS:

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PROBLEM: Utility costs are steadily increasing worldwide. New Embassy Compounds use state of the art, energy efficient mechanical and electrical systems and controls.

QUESTION: What other opportunities should OBO consider to enhance energy performance and produce green buildings?

OBO STRATEGIES

ENERGY:

Identify and implement projects that increase energy security, improve energy efficiency, reduce operating costs, and provide optimum working environments in the Department's overseas facilities. Projects which payback in ten years or less are funded when all benefits included.

SUSTAINABILITY:

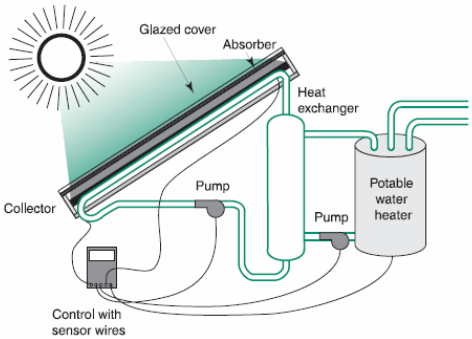
Goal is to reduce ownership costs, improve energy efficiency and water conservation, and provide a safe, healthy, and productive built environment.

- LEED: US Green Building Council's Rating system
  - 26 Points to Achieve LEED certified Rating

EXAMPLES of ENERGY PROGRAM

MagLev Chiller: Variable speed, high efficiency, modular cooling capacity with lower utility/fuel/ maintenance costs **Tokyo, Geneva**.

Solar PV Panels: Passive electricity production with no fuel costs; Reduces generator and fuel requirements; Can provide revenue to the Post **Geneva, Abuja.**

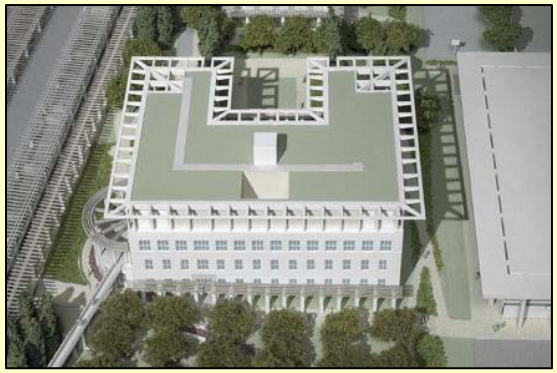


Basic components of a flat plate collector system

Solar Water Heater: No fuel costs. Fluid from the collector to the heat exchanger supplies solar heat to potable water **Frankfurt, Dar Es Salaam, Bamako, Canberra.**

Day Lighting/Fiber Optic Light Pipes: Zero power consumption in daylight. TBD

EXAMPLES of SUSTAINABILITY PROGRAM



Vegetated roofs: Potential energy savings and reduced roofing life cycle maintenance costs; Reduced storm water infrastructure
Athens

- Dual flush toilets & waterless urinals
- Recover HVAC condensate/Manage storm water use
- Daylighting
- Reduced site excavation
- Reduce, Reuse, Recycle resources
- Energy efficient infrastructure => reduced CO^2 emissions
- Utilize local materials

Constructed Wetlands for Wastewater Treatment: Uses natural biological processes for treating wastewater
Mumbai

CHALLENGES:

- **Life Cycle Costs -vs- First Costs and Value Engineering**
  - **-Must balance sustainable design with capital costs**

- **O&M cost savings from new technologies not adequately addressed;**
  - **- Wind Turbines &**
  - **- Fuel Cells.**

- **Metering and Submetering**
  - **- Base line and tracking of energy use: Easier said than done.**